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abrasion amounted to almost a polish, at once bringing to mind the published descriptions of the cutting, polishing and sometimes complete destruction of tree trunks in portions of the southwest by flying sand.

To clearly show the entire possibility of the abrasion in this case being due to flying snow or sleet, I would state that the woodland wherein the phenomena was noticed is very open, of scattering growth and constitutes the northwestern border of a forest of small extent, having an open exposure to the westward of upwards of a mile. Thus the prevailing westerly winds, which rage with tremendous severity at times through this open tract, are able during the winter to hurl and sift through this thin forest growth tons of snow and icy sleet. This is evidenced by the enormous snow-banks which yearly form in the forest, at a little distance from its margins, in short, at the point where the wind by meeting repeated resistance loses its carrying power. This line of deposit varies, governed by the surface contour and variable density of forest growth.

Possibly the phenomenon described has been noticed and published before, but having access to considerable literature on forestry, I have never as yet met with any account, hence this slight contribution which may be of interest to some of the readers of SCIENCE.

PERCY M. VAN EPPS.

GLENVILLE, N. Y.

#### THE PUMA, OR MOUNTAIN LION.

DURING last July and August I was encamped with my family up on the Strait of San Juan de Fuca, near Port Williams, Clallam county, about thirty miles west of Port Townsend. One afternoon, while my children, with their nurse, were playing upon the beach in front of our cabin, a mountain lion (*Felis concolor* Linn.) came down through a strip of woods to the low bank overlooking the beach, and gave utterance to a most frightful cry or scream. I hastened out, calling loudly, and the commotion made by myself, wife, children and nurse, frightened away the brute. Although I had a Winchester repeating rifle in the cabin, I was unable to attempt to get a shot, by reason of a severe illness with which I had been prostrated for several weeks. I

heard this wild cry repeated several times afterwards, but each time farther away in the forest.

About two years before a Mr. Travis, a rancher, living near our camp, was returning home after dark, on horseback, and was chased by a lion. The horse fled in terror along the trail through the forest, never stopping until reaching home. Mr. Travis thinks that the attack was incited by a small dog that accompanied him, rather than upon himself or his horse. He returned the next morning to the locality with several hunting dogs and succeeded in shooting the animal, which proved to be a very large specimen, measuring eight feet from tip to tip. The lions are comparatively plentiful in all wild and thinly settled portions of the State.

I have written this sketch at the suggestion of Mr. Frederick W. True, of the Smithsonian Institution, author of an interesting illustrated paper on 'The Puma or American Lion,' published under the auspices of the Institution in 1891. In this paper Mr. True refers to a conflict of authorities in regard to the cries or screams of the animal, and also in regard to its belligerency, or rather, possibly, its timidity.

MERIDEN S. HILL,

*Corresponding Secretary, Tacoma Academy of Science.*

TACOMA, WASHINGTON, February 13, 1896.

#### LOGIC AND THE RETINAL IMAGE.

WHILE admitting that *all* the physiological antecedents to the sensation of vision are entirely outside the bounds of our experience in the use of eyes, your correspondent, C. L. F. (SCIENCE, February 7, 1896, p. 201), and many others who have written to this journal on the subject during the last six months, object to my assertion that I find *one* of these phenomena inconceivable; and they treat my statement that I cannot conceive that the image on my retina is upside down, as if I had said that I could conceive of the image if it were anything else than upside down.

If for purposes of illustration I declare my conviction that the moon is not made of green cheese, what are we to think of the 'logic' which interprets this as an assertion that it is made of cheese, although this is not green? I

can see no better logical warrant for attributing to me the opinion that I can conceive of the retinal image, but not of its inversion; for, most assuredly, I have said nothing of the sort, and I find all the physiological antecedents to vision equally inconceivable.

If something in the minds of certain writers leads them to believe that I adhere to an obsolete and worthless hypothesis of vision I am helpless, for while I have the right to demand that my words shall pass at their face value I have no way to defend this right except an appeal to unprejudiced readers.

I cannot conceive of the antipodes, and if C. L. F. infers that I accept the astronomy of Homer I must bear up as well as I can.

Both the rotundity of the earth and the inversion of the retinal image are proved by ample evidence, but apprehension of the proof of a truth is a very different thing from conception of the truth itself, and no one who is not totally destitute of imagination could confuse the one with the other; although it may be well to remind C. L. F. that I have nowhere said that 'there is anything which needs explanation in the fact that the image on the retina is inverted,' and that it is because the evidence is conclusive that I made use of the inversion to illustrate that great law of logic that '*the test of truth is evidence and not conceivability.*' (SCIENCE, Oct. 4, 1895.)

If any reader cares to ask what has called forth all this criticism, which has occupied the pages of SCIENCE for more than six months, he may be surprised to find that my statement about the retinal image was nothing more than an incidental illustration of less than a dozen words in an article in SCIENCE, October 4, 1895, in which I tried to show that "the mental vice to which we are most prone is our tendency to believe that lack of evidence for an opinion is a reason for believing something else."

The correspondence which this illustration has excited seems to show that I should have done well to state this truth in a more general form, and to point out that the mental vice to which we are most prone is our tendency to interpret a negation as an affirmation of something else.

W. K. BROOKS.

#### CERTITUDES AND ILLUSIONS.

TO THE EDITOR OF SCIENCE: In my first article on 'Certitudes and Illusions,' I cited two illustrious examples of persons who had lapsed into reification, namely, Spencer in his 'First Principles,' where he reifies force, and Hegel in his Logic where he reifies idea or comprehension; but I did not attempt to exhibit Spencer's reification of force or Hegel's reification of idea. In that article I tried to set forth the nature of the subject-matter of a series of articles which I had planned and promised the editor.

Fichte has seized upon certain of Kant's reifications and those of others and reasoned about non-existent abstractions or pure properties of mind, and in his presentation has naïvely reduced the whole method of reasoning to an absurdity; but he died a disappointed and sad man because he had not consciously discovered that he had murdered his own methods. Hegel seems to have discovered this and to have characterized pure abstraction in no unmeasured terms, notwithstanding which he finally fell into the same vice and reified idea. In my first article Hegel's illusion was not set forth, but only reference made to the matter for the purpose of calling attention to the subject-matter of which I wish to treat. I shall not ignore or underestimate Spencer's contribution to the biology of the lower animals nor his contribution to psychology. In the same manner I shall not underestimate Hegel's acute reasoning in his system of logic, but I shall attempt to show that Hegel accepts Kant's doctrine of antinomies and develops this doctrine into a logic of contradiction and by its use reifies idea and ends as an absolute idealist. Now, Mr. Editor, permit me to say this word in reply to Prof. Royce, whose letter is in every way kind, but whose error consists in supposing that I attributed to Hegel all of the reifications mentioned in my article.

If he will take down the *Phänomenologie des Geistes* and read in the first chapter what Hegel has said about the demonstratives, and then read what I have said about them, he will discover to what I had reference in the treatment and use of these demonstratives, and maybe he will further discover that I have a purpose in speak-